Integration, inclusion theme of nuclear weapons all-hands meeting

Executive VP Steve Rottler praises Sandians' strong sense of purpose and loyalty to customers

By Sue Major Holmes

Steve Rottler has two words for Sandia: integration and inclusion. Integration because "there's no such thing as a program or activity at the Labs that exists independent of any other," and inclusion because "nothing could be more important to the Labs than for each of us to be thinking every day when we come to work, what am I doing to make this the most inclusive work environment possible, what am I doing to be open to the opinions and contributions of others?"

"We succeed or fail together," Steve, deputy Labs director and executive vice president for National Security Programs, told a Sept. 15 all-hands meeting for the nuclear weapons mission. The meeting was video-linked to Sandia sites in California, Carlsbad, and Washington, D.C. Although the session centered on the nuclear weapons program, Steve emphasized its Labs-wide nature, saying the success of Sandia's core nuclear weapons program relies on contributions from thousands of Sandians who don't work in nuclear weapons.

The weapons program, he said, is relevant to everyone at Sandia. It's not possible to execute any program without relying on other programs and the breadth of technical and non-technical capabilities throughout the Labs, he said.

Nuclear weapons are Sandia's core mission, helping build a capability-based foundation of people, facilities and tools, and a research base that enables the Labs' other six mission areas. Advances in the other mission areas, in turn, enable the nuclear weapons mission area

(Continued on page 5)

DEPUTY LABS DIRECTOR and Executive VP for National Security Programs Steve Rottler at a Sept. 15 all-hands meeting for the nuclear weapons mission area said, "We lose track of the fact for each and every one of us to be successful, it requires contributions from hundreds if not thousands of other people here at the Labs." (Photo by Randy Montoya)

This Martian *has a Sandia connection*

One-time Sandia intern Andy Weir's best-selling novel is now a major motion picture starring Matt Damon. See **page 3.**

Exceptional service in the national interest

SandiaLabNews

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Sandia Emergency Response Team takes top technical honors at 2015 HAZMAT challenge

A FIVE-MAN EMERGENCY RESPONSE TEAM from Sandia, including, left to right, John Ledet, Dale Larez, Victor Marquez, Richard Lovato, and Troy Hamby (all from 4236-1) nabbed top technical honors at the recent 19th HAZMAT Challenge at Los Alamos National Laboratory. For more about their big win, see the story on **page 12**. (Photo by Randy Montoya)

2015 ECP campaign runs Oct. 5-23

Five things you didn't know about United Way

1. United Way of Central New Mexico (UWCNM) is local, governed by a local board of directors.

2. In 2015 and 2016, UWCNM's Community Fund will invest $3.5 million in 103 local health and human services groups.

3. Some 2,261 nonprofits throughout the state are listed in the Center for Nonprofit Excellence's New Mexico Nonprofit Directory. Want to volunteer? CNPE lists volunteer and board member opportunities with nonprofits and schools at www.nmvolunteers.org.

4. Dial 2-1-1 to get information and referrals for assistance statewide. Calls are routed to local United Ways covering every county. UWCNM has a staff member dedicated solely to helping people who call 2-1-1.

5. Tax Help New Mexico, administered by UWCNM, offers free tax preparation to low-income families and individuals through 31 sites in New Mexico and eastern Arizona.

Employee Caring Program

For more about Sandia's 2015 ECP campaign see pages 6-7

Inside . . .

That's that

Saw a news item the other day about a developing workplace trend: In a backlash against the purported excesses of "casual Fridays," where the definition of "casual" has gotten more and more . . . well . . . casual, and the definition of "Friday" has gotten more and more to be "whenever," some employers have instituted "formal Fridays," where rather than dressing down, employees are encouraged to dress up.

Apparently a certain subset of the hipster population has embraced formal Fridays with imagination and more than a little dose of ironic overstatement. They're taking the word "formal" quite literally. Some men – this has got to be mostly in New York marketing firms, where wacky creativity is part of the stock in trade – have taken to wearing top hats and tails to work on Fridays. Their women colleagues are showing up fully gowned as though they're about to walk the red carpet at the Tony Awards.

The arc from casual Fridays to casual every day is not a hard one to trace: Once the idea of not having to dress up for work one day of the week caught on, the laws of entropy took over and casual wear became the everyday norm in lots of workplaces across the nation.

The way we dress for work is an interesting subject in itself and I suspect sociologists could draw some conclusions about where we are as a society based on tracking those trends.

Our style of dress has certainly changed at Sandia. If you look back at photos from old issues of the *Lab News*, you'll note that our folks on both the technical and business sides back in the 1950s and 1960s routinely dressed just about the same way bankers and lawyers did.

Considering the scope of what we're doing at Sandia in 2015, it's hard to make a case that our changing dress styles have had a negative impact on the quality of our work over the years. To the contrary, our more casual approach may actually be a net plus for us. We're still tackling the most complex challenges the nation steers our way and maybe, just maybe – because of the way we dress for work these days – we're tackling them without breaking a sweat – *or* wrinkling up a good dress shirt.

* * *

Yogi Berra is famously quoted as saying "It ain't over 'til it's over." Well, sadly, for Yogi, it's finally over. He passed away at age 90, a beloved American original as renowned for his big-hearted personality and his curiously wise malapropisms – called Yogi-isms – as he was for his accomplishments on the baseball diamond. His Yogi-isms have been quoted with affection and good humor for decades.

Yogi's generation of ballplayers was probably the last in which baseball was indisputably the National Pastime. In today's more highly charged era where everything in our lives seems to be on hyperdrive, baseball, with its pastoral roots, strikes many as too slow. In Yogi's era, baseball players were the real superstars. Basketball and football? They were just something to pass the time until spring rolled around again. And Yogi was, without a doubt, a superstar, one of the biggest names in our biggest game. He wore that mantle with typical unassuming good grace. We loved him because he was a regular guy, an ordinary guy with extraordinary gifts. His baseball feats are enshrined in Cooperstown at the Hall of Fame; his Yogi-isms are so embedded in the popular culture that they'll never be forgotten. When Yogi said, "No one goes there anymore because it's too crowded," you knew just what he meant. When he said "Baseball is 90 percent mental and the other half is physical," it made perfect sense. Likewise, "A nickel ain't worth a dime anymore." For Yogi, this life is over. For us and our memory of him? Never.

* * *

So, Yogi dies and says to St. Peter, "Your Saintliness, do I get right into heaven? I've tried to live a good life. I never missed Mass on Sundays, even when we were on the road."

St. Peter laughs and says, "Of course, Yogi, we all love you up here. Why just the other day, Lou Gehrig was saying he can't wait to meet you, you practically being teammates and all."

"Gee, that's great," says Yogi, "I'd love to meet him, but how do I find him? I'm new around here, you know, and this is a pretty big place." St. Peter says, "That's easy Yogi. In fact, you already know the answer: When you come to a fork in the road, take it."

See you next time.

– Bill Murphy (MS 1468, 505-845-0845, wtmurph@sandia.gov)

Breaking Bad Habits: Wellness Expo creates a chain reaction for preventive screenings

By Lucy Long

More than 700 people attended HBE's "Breaking Bad Habits" Wellness Expo on Saturday, Aug. 29, at Embassy Suites in Albuquerque.

The Wellness Expo featured onsite biometric screening appointments with real-time results by Sandia's health plan vendors and exhibits from 43 local organizations. Free screenings included blood pressure, BMI, glucose, asthma, vision testing, heel scan, balance testing, pulse oximetry, and more.

One of HBE's goals this year was to encourage and provide opportunities for employees and their spouses to get screened, get real-time results, and create (or sustain) healthy habits.

"The nurse practitioner answered all my questions and directed me toward my next steps, which I really appreciated."

Event organizer Wendy Burghaus-Ruiz (3512) says she hopes the event encouraged attendees to take a proactive approach to their health.

"Many people understand the importance of screenings, but they don't always make time for them," Wendy says. "We wanted to make this process easy, with all the information in one place. The Wellness Expo was part of our ongoing efforts to educate, motivate, and empower our employees and their families to make better healthcare decisions by becoming better healthcare consumers."

WELLNESS EXPO attendees receive information and screenings.

Margaret Baca (2522-1) says she appreciated the real-time results and is eager to maintain her health. "There were a lot of people and I thought they were going to rush me through my appointment but it was actually very personal. I was apprehensive about coming to this event but I'm glad I did because I got a clean bill of health. The nurse practitioner answered all my questions and directed me toward my next steps, which I really appreciated."

The convenience of the event was a popular draw for some. "I wouldn't have had [my annual preventive screening] otherwise," admits Copeland Neeley, husband of Lauren Neeley (6921). "The equipment was really fast and impressive."

The Sandia/California health fair, scheduled for Thursday, Nov. 12, 1-3 p.m. in Bldg. 925, will focus on stress management, sleep, back pain, and nutrition topics.

HBE plans to offer additional preventive screening events in 2016 for employees and spouses.

For more information on free annual preventive screenings, assistance finding a doctor, or to learn more about upcoming events, go to hbe.sandia.gov.

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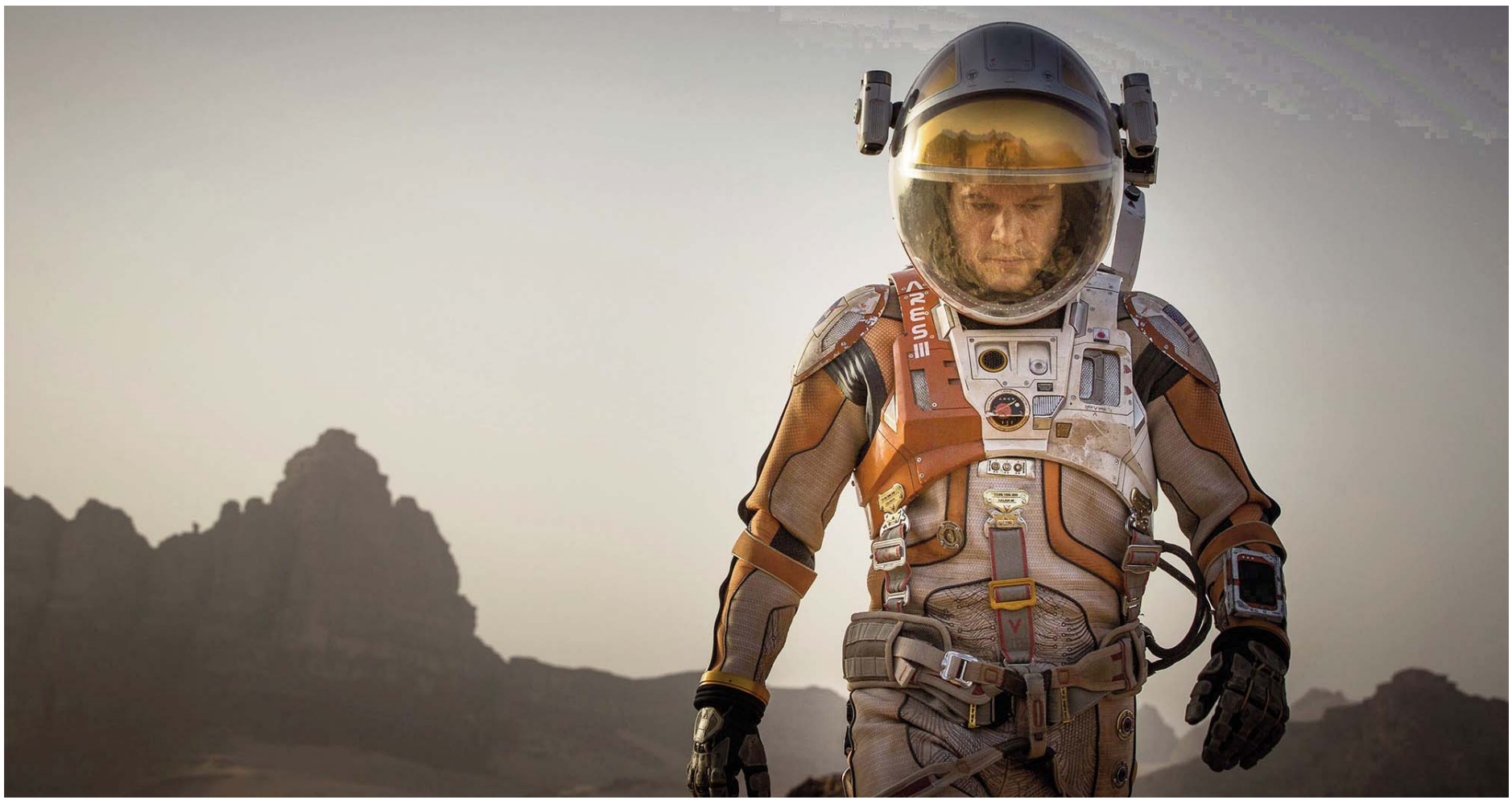

ONE-TIME SANDIA INTERN Andy Weir's *New York Times* best-selling novel *The Martian* has been made into a major motion picture directed by Ridley Scott (*Gladiator, Black Hawk Down*) and starring Matt Damon (*Good Will Hunting*, *The Bourne Identity*). The novel and movie tell the story of Mark Watney, who is left for dead on Mars by his crewmates following a horrific storm. Watney, however, has survived. *The Martian* is the tale of how he manages to stay alive long enough to contact NASA and wait for a rescue mission to "bring him home" (the tagline of the movie).

(Photo courtesy of 20th Century Fox)

The Martian author Andy Weir's path to success began at Sandia

By Patti Koning

Long before Andy Weir was the *New York Times* best-selling author of *The Martian*, which comes out as a major motion picture on Oct. 2, he was an intern at Sandia/California. Andy was a curious, energetic, technically savvy teenager who had the good fortune to be paired with just the right mentor in metallurgist John Krafcik.

ANDY WEIR

"Andy came to me after working in a couple of other groups, who I'm not sure knew quite what to do with him," says John, who worked at Sandia from 1984-2000. "He was so full of ideas and creativity that he was bouncing off the walls. My biggest concern was roping him in and keeping him focused."

John's wife Karen Krafcik (8223) also knew Andy during this time. "He was a very upbeat teenager full of enthusiasm and energy," she recalls.

Programming and 'proper mad science'

This was the late 1980s, when computers and programming were still fairly new to many aspects of the workplace. It was an era when a kid like Weir with time to experiment with programming might know more than his Sandia mentor.

"It's funny to recall what working with computers was like then. To transfer a file from a PC to a Mac you needed special cabling and a software program," says John. "Every operation was very cumbersome."

Weir's first assignment at Sandia was in the Combustion Research Facility. "I was sort of dumped on a group while I waited for my security clearance," he recalls. "A manager wanted to display data, so he handed me a book on C and asked me to figure it out. That's how I started programming."

John's group was working on a project to gather compositional data on ingots that the aerospace industry used for turbine blades. "This project was the highlight of my career at Sandia," he says. "We were eventually able to see and understand the defects to the extent that the manufacturer changed their furnace procedure and fixed the problem."

Weir, adds John, contributed greatly to that success. "He was ahead of the curve in programming, way out in front of everyone else in the group," he says. "Add to that his creativity. Andy challenged us to think of different ways to approach problems."

"It was proper mad science," says Weir. "To me, it was an awesome experience. I felt like a grownup for the first time. John gave me tough programming challenges. I discovered that I liked programming and was pretty good at it. That was my career for 25 years before becoming a full-time writer."

Imagination and scientific accuracy yields a best-seller

John is not surprised at Weir's success. "His imagination was off the wall," he says. "All you had to do was put a pen in his hand."

Weir always wanted to be a writer and even spent three years working on a novel that was never published, time he financed by selling his America Online stock options after being laid off from that company.

In 2009, when he began writing *The Martian*, Weir was strictly a hobbyist with an online writing group and a website where he self-published web comics, short stories, and serial novels. Weir shared his writing with a mailing list of about 3,000 other science fiction fans.

The Martian opens with astronaut Mark Watney stranded on Mars. To survive, Mark has to, as the character in the movie trailer puts it, "science the [expletive] out of it." All that science was as technically accurate as possible, helped by feedback from Weir's mailing list.

"I wanted to make sure that geeks like me could enjoy the book, so I put a huge amount of effort into making sure it was scientifically accurate," he says. "I also put a huge amount of effort into procrastination. It was fun to do the research, often more fun than writing."

Weir self-published through Amazon and the Kindle edition topped the best-selling science fiction list, which caught the attention of Random House. A month after publication, *The Martian* cracked the *New York Times* best-seller list. A month later Weir quit his day job. *The Wall Street Journal* described the book as "techno sci-fi at a level even Arthur Clarke never achieved."

20th Century Fox quickly optioned the movie rights, the first step in a long process. Few books that are optioned ever turn into movies.

For *The Martian,* however, the pieces fell into place quickly. Drew Goddard (*World War Z, Cloverfield*) liked the book and signed on as screenwriter. Actor Matt Damon liked the screenplay and wanted to star. Ridley Scott agreed to direct.

"It was a huge surprise," says Weir. "And it sort of crept up, there was never a moment when I popped the champagne. I'm thrilled with how the movie turned out."

His role in the movie — a question he's asked often — officially was to cash the check. But Weir says Goddard consulted with him almost daily while writing the screenplay and he continued to answer questions during the filming. "They were under no obligation to take my suggestions, but they did incorporate some, which made me happy."

Andy's alter ego, Mark Watney

John thoroughly enjoyed the book — and recognized much of his former mentee in the main character. "Mark Watney has all of the qualities I like about myself and none that I don't," says Weir.

"Andy's optimism is definitely reflected in *The Martian* through the character Mark Watney," says Karen. "His selfless sharing of his stories with fans brought him success. It couldn't have happened to a nicer guy."

In addition to starting him on a fulfilling and lucrative career as a programmer, Weir credits his experience as a Sandia intern with another aspect of his success.

"I was told that I nailed the culture at NASA, even from people currently working there," he says. "I didn't research that aspect of NASA. I based it on my experience at Sandia, figuring that one large government-funded, research and science organization would be similar to another."

Andy Weir talks The Martian *at LLNL*

Want to hear more about Andy Weir? Use your smartphone's QR scanning app to launch the YouTube video from his visit to LLNL in September. (Alternatively, visit http://tinyurl.com/pauhx6h.)

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Why attempt the entrepreneurial life?

Two researchers on leave share their experiences

By Neal Singer

What leads a Sandia researcher to take entrepreneurial leave? Is it money? A desire to be one's own boss? An attempt to take one's ideas into a production phase that would be impossible at a national lab?

When people used to working in an existing management structure have to deal with each other with no role predefined, who's the boss? Whose intuitions should be followed? Which deals should be made? And how do researchers meet existing financial obligations without their paychecks arriving on a regular basis?

Sandians-on-entrepreneurial-leave Murat Okandan and Jose Luis Cruz Campa recently shared their experiences as they attempt to launch their company mPower (as in "empower"), an enterprise based on research performed at Sandia by themselves and others.

The company's opening research gambit rests upon a high-profile invention known colloquially as "solar glitter" — a method of using computer chip fabrication facilities to create solar cells so small and thin that they resemble pieces of glitter. The two researchers believe their potential product to be more efficient and cheaper than those of competitors who have relied on more conventional production means to create photovoltaic units. But how can Jose Luis and Murat expect their new company to survive in today's cutthroat solar market? What got them started, and what keeps them going?

MURAT OKANDAN, above, and Jose Luis Cruz Campa are on entrepreneurial leave from Sandia to try to bring "solar glitter" to the marketplace. (Photo by Randy Montoya)

'Living the dream'

Jose Luis, born in Massachusetts, grew up in Mexico City where he did his undergraduate degree in mechanical engineering at Universidad Autonoma Metropolitana. In 2004, at the age of 23, he returned to the US to earn his master's degree in physics and PhD in electrical engineering at UTEP.

But he never forgot the environment of his boyhood years in Mexico City, where his dad was a university professor working for the petrochemical business. "Mexico City is the third largest city in the world, but I always saw scarcity," says Jose Luis. "They would shut down the water for a few days at a time during the hot months. There was always a line to get goods and services. The subway was so crowded, it was almost impossible to get through the door. The pollution one time got so bad it killed birds and the elderly."

On a pollution scale that topped out at 100 as the maximum tolerable, "one time we hit 500," he says.

"We're killing ourselves," he decided early on. "We can't put a bunch of cars in a basin [the situation in Mexico City] and burn all the oil we want."

Now Mexico City has instituted new laws for cars, he says. There is more public transport, and pollution has decreased substantially. But Jose Luis' early experiences led to an intense interest in conservation. He drives a Prius and deliberately has chosen to live in a small house. For his master's degree, his project was solar cells. His PhD focused on Sandia microsystem photovoltaics.

He has no children to support. His wife, a UNM counselor, backs his plunge into environmentally based entrepreneurialism.

"I'm living the dream," he says.

Petroleum is too valuable to burn

Murat, with two young children and a wife who is a medical librarian, spent his first year of life in Palo Alto, California, where his parents were engineering students at Stanford. When the family returned to Turkey, his mom started a petroleum engineering department at an Ankara university and his dad was employed as a mining engineer. Murat himself achieved his bachelor's, master's, and PhD, all at Penn State in electrical engineering.

His background, growing up in an engineering household, made him conscious that "petroleum and natural gas are much more valuable as a complex chemical feedstock material than just something to burn. We need to use our resources in the most efficient way possible for the future." So, over the years, he's become a missionary for photovoltaics (PV).

"We're not inheriting the world from our parents, we're borrowing it from our kids," he says epigramatically. "The way we're using energy, we're not going to leave them a pretty legacy. Solar is one aspect of a solution. I just so happen to think it's THE one."

The sun, he says, "is a perfectly placed wireless provider of energy 24/7. And you don't have to worry about activation products, containment, or other challenges facing our other fusion reactors."

Photovoltaic cells, he says, require a little bit of aluminum and copper, but they're basically all silicon. "In energy payback, it takes two years before [a PV panel] pays back the energy it took to build it. With fossil fuels, there are mining costs, CO_2 reclamation difficulties. . . "

A strong motivator

Believing that your business could save the world is a strong motivator when your company hits a stumbling block, and the little business did.

But at first, work at Sandia seemed to indicate that a golden road would open. News of Sandia's first micron-sized solar particles which, placed on a light, flexible backing, could absorb sunlight on one side of their structure and spit out electrical energy on the other, led to interest from investors around the world. Truman Fellow Greg Nielson, one of the key members of the PV research, was selected as "one of the 10 brightest young scientists for 2013" in a contest sponsored by *Popular Science* magazine.

And the technology improved when Sandia researchers, including Jose Luis and Murat, were able to increase the amount of sunlight absorbed and electrical energy released per given area. Government agencies and industrial companies expressed interest. It seemed that a spin-off company to make solar glitter was a commercial possibility.

"Sandia has a direct line of sight into aerospace, but there's consumer electronics, residential rooftop solar, and other applications," says Murat.

So several brave souls agreed to activate Sandia's entrepreneurial clause, which permits Sandia researchers to start a private company with a safety net: If the company flops, a return to Sandia within two years is guaranteed.

The company almost scuttled

But even before the licenses were issued — a time-consuming negotiation in itself — and business financial support attained, complications in the teaming arrangements almost scuttled the nascent company. Conditions at Sandia are highly structured. There's just so much space to work, just so much money to work with, processes that must be followed, a vision that must be explained to DOE or other funding source, managers to update, colleagues to persuade to join a project.

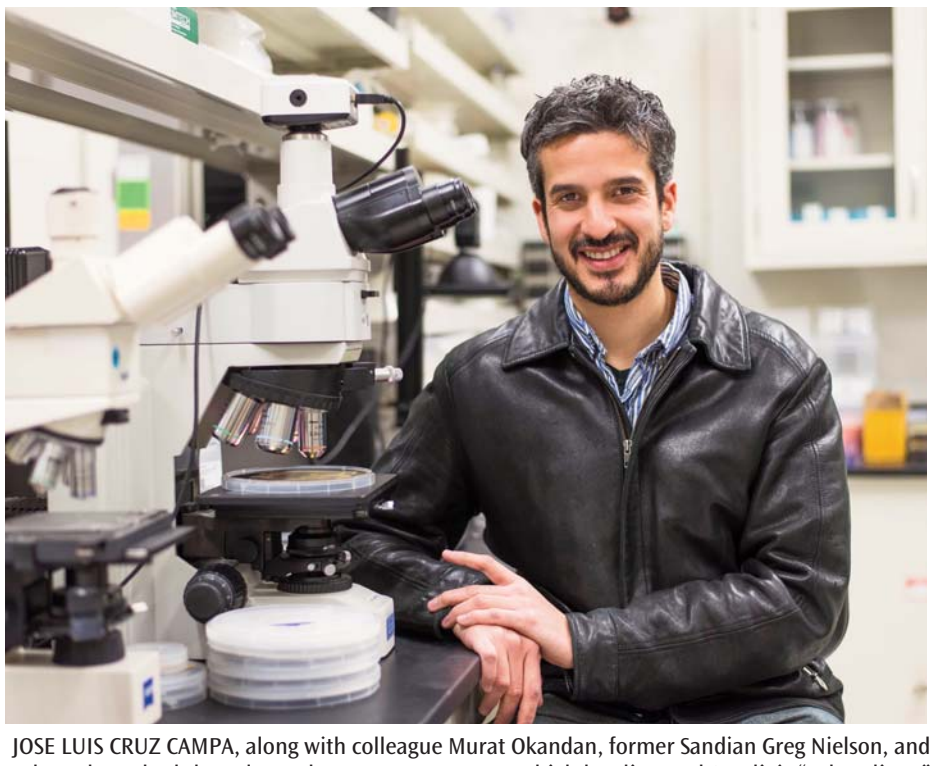
But in the big world, reality is hazier. If you're good at Sandia, does that mean you're going to be effective in the competitive commercial world? You can write a business plan in bureaucratic language, but can you write one for a private company competing for commercial dollars, that needs to persuade investors or larger companies to stick around for results? Who is more likely to make decisions in the world of business that will enable your company to thrive: you, or the people you've connected with as business partners, advisors, or potential investors? It's not clear.

And in the ensuing uncertainty, several team members departed from the company for a variety of reasons.

That left researchers Murat and Jose Luis, at least temporarily ex-Sandians, standing alone carrying the mantle of mPower Inc., attempting entrance to a business world about which they knew precious little.

But their enthusiasm burned brighter at the challenge.

Upcoming *Lab News* issues intend to follow the two researchers on an occasional basis as they move forward in the entrepreneurial world.



JOSE LUIS CRUZ CAMPA, along with colleague Murat Okandan, former Sandian Greg Nielson, and others, launched the solar tech company mPower, which has licensed Sandia's "solar glitter" technology. Several founding partners have left the company but Murat and Jose Luis have confidence there is a place for the technology in the solar marketplace. (Photo by Randy Montoya)

Steve Rottler emphasizes inclusion at NW all-hands meeting

Take one thing about yourself that is vitally important to who you are as a human being or maybe equally who you are as a professional, and ask yourselves, if you were forced to hide that, if you were forced to suppress it, forced to avoid any reference to it, any use of it, in the eight to 10 hours you spend here every day, five days week, how would you feel?"

(Continued from page 1)

and further strengthen the foundation to the benefit of all missions, he said.

"This is a very good time to be in the weapons program," he said. Looking back at his 30-plus years at Sandia, Steve said "these are the good old days" given the nearly $1.7 billion nuclear weapons budget, breadth of work, and numbers of people and full-scale engineering programs.

Sandia's responsibilities cover the current stockpile to sustain the nation's deterrence, work to extend the life of weapons in the stockpile, and thinking beyond the current stockpile to be ready to respond to the nation's future security needs, he said.

Praise for strong sense of purpose, loyalty

Steve praised Sandians' strong sense of purpose in their jobs and loyalty to their customers, but said he wants to chip away at problems that arise when people identify so closely with their work that they believe everything revolves around it.

"We lose track of the fact for each and every one of us to be successful, it requires contributions from hundreds if not thousands of other people here at the Labs. We can lose sight of the fact that for a program like the nuclear weapons program to be successful, it requires success in many other technical programs," he said.

Emphasizing inclusion, Steve said he becomes emotional telling the stories of Sandians who don't feel included, who feel they must leave a big piece of themselves outside the gate to come to work.

"Take one thing about yourself that is vitally important to who you are as a human being or maybe equally who you are as a professional, and ask yourselves, if you were forced to hide that, if you were forced to suppress it, forced to avoid any reference to it, any use of it, in the eight to 10 hours you spend here every day, five days week, how would you feel?" Steve asked.

Sometimes behaviors and habits are inconsistent with inclusion, he said. "It's the unconscious biases we have, it's the things we say because we've always said them because we know what we mean but others don't," he said.

All-hands discussion looked at mission and budget

The hour-and-a-half long meeting also featured Gary Sanders, VP and chief engineer for nuclear weapons; Rob Leland, chief technology officer and VP of science and technology; and Rick Fellerhoff, NW Program Management Unit chief operations officer.

Gary presented a wide-ranging look at the accomplishments of Sandia's nuclear weapons work over the last year, including current programs for legacy stockpile systems as well as for the B61-12, the W88 Alt 370, the Mk 21 fuze replacement, and the W80-4.

He reviewed tests and diagnostics at the systems and component levels, said a code management system was being developed for all use-control weapons, and pointed out component development work, including rapid development cycles that save millions of dollars; real-time telemetry for the flight-test program; successful flight and laboratory tests; additive manufacturing for such things as neutron generator mockups, tooling, and fixtures; smarter surveillance; and "new neutron generators for pretty much every system in the stockpile."

He emphasized the importance of materials science and computing and simulation, and praised the robust Weapons Intern Program.

NW, science, and technology

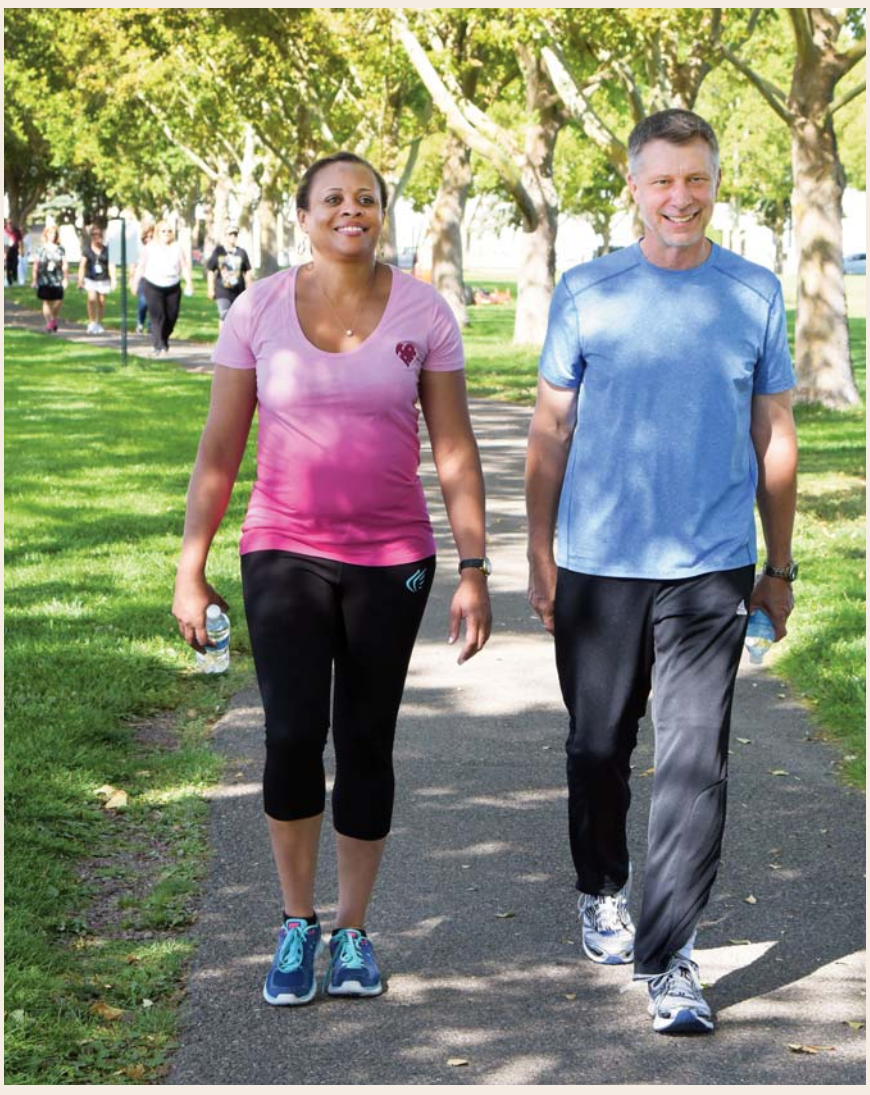
Rob highlighted the contributions of Sandia's science and technology base to the nuclear weapons program, illustrating that with a handful of examples, including Z machine experiments with plutonium, modeling of neutron damage variations, and how MESA and collaborators across Sandia developed application-specific integrated circuits and heterojunction bipolar transistors for nuclear weapons.

He noted the creation of new environmental specifications for the B61-12 Life Extension Program in a multi-disciplinary approach and a high degree of modeling and simulation, and design collaboration with Cray and Los Alamos National Laboratory on the Trinity supercomputer.

Rick discussed current and upcoming budgets with the nuclear weapons program now at historically high levels. The fiscal year that's winding down was a big one for the program, and fiscal 2016 is expected to be another good year, he said. However, he also said Sandia faces challenges because the budget is expected to operate under a continuing resolution for part of the year, which limits funding to fiscal year 2015 levels and constrains spending authority until a full budget is passed.

If you have access to Sandia's Techweb internal website, you can view the presentation at http://tiny.sandia.gov/7gb1e. Questions to nwcomm@sandia.gov.

Division 3000 'gets moving'



HR AND COMMUNICATIONS DIV. 3000 VP Melonie Parker is joined by NNSA Sandia Field Office Manager Jeff Harrell for a vigorous walk around Hardin Field on Kirtland Air Force Base as part of Div. 3000's Get Moving initiative to improve cardio health. Melonie hosted the weekly walks with Div. 3000 colleagues and special guests like Harrell and former Labs Director Paul Hommert throughout the summer. (Photo by Randy Montoya)

Collective impact

Even a little means a lot as ECP kicks off Oct. 5

By Nancy Salem

Sandia demonstrates every fall that there's strength in numbers, says Ted Kreifels, campaign chairman of this year's Employee Caring Program (ECP).

"The theme behind the campaign is 'I am a Sandian, and the United Way is one of the things I care about,'" he says. "In everything we do, we form a culture that says we care about the community. Because so many of us give, every amount makes a difference. When we work together and combine our resources, we have a collective impact."

Since the ECP was launched in 1957, Sandia has been the single largest supporter of the United Way of Central New Mexico's (UWCNM) annual campaign.

Sandia staff and retirees have given more than $88 million to hundreds of agencies serving tens of thousands of people needing help. The Labs' per capita giving ranks in the top among companies of its size nationwide. "Sandia's impact on the community is huge," says Randy Woodcock, UWCNM's vice president and chief strategic officer. "It cannot be overstated how much Sandia has changed this community for the better."

Ted, manager of System Surety Engineering III Dept. 424, says people often come to a point in life where they need help. "Anyone can be slapped down by a bad set of circumstances," he says. "Where do you turn to get over the rough spot without family or friends? If we are to call ourselves a great nation, we have to have safety nets for people in trouble. Who would help them if we didn't have the United Way?"

Sandia employees and retirees in 2014 increased donations by 8.2 percent over the previous year, giving $6,556,666 to the charitable organization. The total eclipsed the goal of $6 million and set a record. The retiree share was $851,109. Total Labs participation was a record 77.3 percent. New employee participation rose 6 percent to 69 percent.

Of the total giving, $1,697,867 was designated to the Community Fund, up $102,344 from the previous year. The fund supports a range of nonprofit agencies and programs that help people in Bernalillo, Sandoval, Torrance, and Valencia counties.

Reaching out to new employees

Building on that success, the 2015 ECP kicks off Oct. 5 with two key goals:

- Increase overall participation to 78 percent.
- Increase new employee participation to 70 percent.

Ted says it is especially important to reach new employees. "About 3,000 people have been hired at Sandia in the past four years, almost a third of the staff," he says. "We need to show them who we are. We have a culture. We are people with a culture of giving, and now you're one of us."

Another message is that giving can be fun, Ted says. "There's a saying that you should give until it hurts. Well, we say you should give until it feels good," he says. "We want to create an environment where people enjoy what they're doing for the community."

COME ON IN — Students at the Albuquerque Sign Language Academy had big smiles for visiting Sandia staff. The charter school offers an innovative, dual-language, non-institutional educational model to improve outcomes for deaf, hard of hearing, and hearing students. The United Way-supported school uses American Sign Language and English to achieve academic excellence, encourage family involvement, and promote multicultural community partnerships. (Photo by Lonnie Anderson)

The campaign gets underway Oct. 5, 11 a.m.-1 p.m., in the Steve Schiff Auditorium lobby and courtyard with a barbecue and the opportunity to meet representatives of nonprofit agencies where Sandia employees volunteer. A $25 donation will be made to the United Way Community Fund for each attendee.

It runs through Oct. 23. Fundraising events are planned including book fairs Oct. 6-8 at the Thunderbird Cafeteria from 10 a.m.-2 p.m., Oct. 13-15 at the Steve Schiff Auditorium from 10 a.m.-2 p.m., and Oct. 20-22 in the IPOC second floor break room from 10 a.m.-3 p.m.

Service before self

Ted, a longtime volunteer and board member with Big Brothers Big Sisters of Central New Mexico, saw his parents volunteer time to the community and foster children in addition to having six of their own. "Giving back was inbred in me," he says. "I spent 22 years in the Air Force and went from the notion of service before self with the country to, now, service before self with the community.

"For me, it's about a sense of responsibility for people who are down on their luck. The community is a family, and I am part of that family. We do anything we can to help our families; why not expand that in the broader sense to the community."

Ed Rivera, president and CEO of UWCNM, says Sandia's generosity inspires others and changes lives. "The spirit of giving at Sandia has never been stronger," he says. "We and all those who benefit from what you do thank you from the bottom of our hearts."

Ted says the ECP is a wonderful opportunity to serve the community in a broad, impactful way. "Join an affinity group, get involved with your time or your money," he says. "Let's do what we can to help people who have fallen through the cracks."

I give because . . .

"I give because I love and support our community. I have been around philanthropy my entire life and have seen first-hand how nonprofits, philanthropic leaders, and donors have benefited our community. Being philanthropic is a great way to support your city and state and allows you to directly care for people in need. Philanthropy lets you give a part of yourself back to the community."

— **Rachel Trojahn** (5784)

"Everyone needs help from time to time. I give to the United Way Community Fund because all the money donated is carefully and specifically allocated to charities that will provide the biggest impact to the largest number of people in need. We are all in this together, and helping those less fortunate ultimately helps us all."

— **Jonathan Madison** (1851)

"I believe in giving back, no matter how big or small. It can be food, supplies, clothes, or as simple as taking time out of a busy schedule to lend an ear. I give because I feel blessed to have my family's health, a roof over my head, and food on our table. Many people do not, and feel lost. I am fortunate to work at Sandia and be able to donate money through the ECP. Changing the world can be as simple as performing one act of random kindness at a time."

— **Stephanie Vigil** (5001)

Corporate Cornerstone

Every penny you give helps people in need

The United Way of Central New Mexico established the Corporate Cornerstone program in 1997 to cover administrative expenses. All those costs are paid by companies that choose to direct their gifts to the program.

Because of those corporate gifts, 100 percent of money donated by individuals goes directly to help people in need. When Corporate Cornerstone donations exceed administrative expenses, the excess goes to the Community Fund. Lockheed Martin/Sandia is among the more than 70 Corporate Cornerstone companies.

The program originated in New Mexico and has been adopted by United Ways across the country.

United Way affinity groups connect donors to their passions

By Nancy Salem

About a dozen years ago, the United Way of Central New Mexico (UWCNM) began forming groups of donors who shared commitments to particular causes. Known as affinity groups, they have become an important part of the charitable organization's work in the community.

"The groups bring people together around issues they care about," says Jennifer Mastripolito, UWCNM's chief development officer. "Workplace campaigns introduce people to the United Way. Affinity groups help them stay connected."

The oldest is Women in Philanthropy, which focuses on women's self-sufficiency. The group's more than 860 members support programs, through time and targeted giving, that help women who are facing hardships stabilize their family situation and become financially secure.

"These programs help break the cycle of poverty by giving women life skills, providing career opportunities, and helping them engage in their children's education so the children will have better opportunities," says Melecita Archuleta, senior manager of Neutron Generator Enterprise Integration Dept. 2720 and the Sandia contact for Women in Philanthropy. "The best thing about being able to give money to an affinity group like Women in Philanthropy is that I can be assured the money is being used for activities that are near and dear to my heart."

Membership in an affinity group requires a UWCNM donation ranging from $500 to $1,000, depending on the group.

"Affinity groups engage their membership with an issue year round," Mastripolito says. "They go on agency visits and bring agencies together to talk about the issue. They form giving circles. They learn about an issue and encourage others to be part of it."

Here are the other affinity groups and their Sandia contacts:

• **Hispano Philanthropic Society.** This collaboration between the Albuquerque Hispano Chamber of Commerce and UWCNM, which is the No. 1 Hispanic philanthropy group in the United Way system, focuses on middle school education. "This is an important time when young people are making the transition from being to kids to being adults," Mastripolito says. "It is when many kids decide to drop out." The group, with about 350 members, has a mentorship program in the Albuquerque Public Schools. The Sandia contacts are Jesus Ontiveros (10590) and Katie Esquibel (10655).

• **Young Leaders Society.** This group of about 880 people is for people age 45 or younger and focuses on high school education. "They are effective because they can say, 'I'm not that much farther along than you,'" Mastripolito says. "They encourage students to be successful and think about college and career." Sandia contacts are Shauna Adams (422), Imani Adams (426), and Nick Miller (10625).

• **Loyal Contributors.** These donors cross over all the groups and include about 11,000 people who have given to the UWCNM 10 years or longer. "Sandians are a significant portion of this group," Mastripolito says. "This is about long-time giving, regardless of the amount, a commitment over time."

• **Tocqueville Society.** The society has 619 members who donate $10,000 or more annually. Tocqueville has won national awards for its growth and generosity. Sandia contacts are Dawn Abbott (9312) and John Abbott (9339).

• **Guys Give.** This is a pilot group for, as the name says, guys. "The intent is to bring together people who don't fit into the other groups but who want to get involved," Mastripolito says. A portion of the Guys Give gift goes to support UWCNM's Corporate Cornerstone program, which pays the agency's administrative costs. The Sandia contact is Jac Pier (10592).

"Affinity groups are about more than just giving money," Mastripolito says. "It's about giving your heart and soul to understanding and being part of an issue."

GROWING IN MANY WAYS — Sandia VPs Bonnie Apodaca (10000), center, and Jim Chavez (6000), right, and David Gibson, Dept. 4020 senior manager, toured the Cornucopia Adult and Family Services greenhouse. Cornucopia, which is supported by the United Way Community Fund, is designed to meet the physical, mental, and emotional needs of adults with developmental disabilities and help them develop life skills. (Photo by Stephanie Blackwell)

Community Fund builds stronger cities through collaboration

By Nancy Salem

The United Way of Central New Mexico (UWCNM) Community Fund is finding creative ways to get social service agencies to work together to deepen their impact.

The fund supports a range of nonprofit agencies and programs that help people who are struggling to better themselves in Bernalillo, Sandoval, Torrance, and Valencia counties. "The needs in the community far outstrip the available funding, so we want to put the donors' dollars where they will have the greatest impact," says Justin Ford (5634), who sits on the UWCNM's grant-awarding Community Impact Council (CIC) that oversees the Community Fund. "Sometimes agencies with missions that align well reach farther. We see the value in having agencies leverage each other and work together to identify where the greatest needs are and how to shape services to meet those needs."

For example, five agencies that work in early childhood intervention through Part C of the federal Individuals with Disabilities Education Act (IDEA) faced stagnant reimbursement through Medicaid while costs were rising. "In the state of New Mexico, a child with a developmental delay is mandated to receive services," Justin says. "Nonprofits set these kids up to be as successful as possible later in life, get them into mainstream education."

The five groups known as the B4-3 Network — Abrazos, Alta Mira, Life Roots, La Vida Felicidad, and Native American Professional Parent Resources — came together to see how they could, as a team, address the funding gap and make the system sustainable. They successfully applied to the Community Fund through a formal collaboration process that lets them share the funding in a single grant.

"They had to decide whether to apply collaboratively or individually, and they took the leap to collaboration," Justin says. "They demonstrated incredible mutual trust. They interact as a team, share best practices, cross train, and share staff across a four-county area. They share specializations and help clients and families get what they need without having to travel. There are huge benefits to the clients and the funders. They are changing the way the state is administering the early intervention program."

Another Community Fund collaboration is between the Girl Scouts and TFLOS, or Tools for Leaning Outreach Services. The Girl Scouts is a large network of school-age girls, and TFLOS provides STEM education outreach.

"The collaboration combines an existing network of girls with a service provider who can promote STEM education," Justin says. "The mission is to reach girls in late grade school to early middle school where studies show they decide whether to stick with STEM or not. Reaching them right at that critical time can send the message that STEM is cool, fun, and something girls do."

The Community Fund invests in agencies that address education, health, and self-sufficiency. Volunteer panels that include many Sandians oversee grant allocations.

"Sometimes people ask if the process is going to get their money where they might have chosen to put it," Justin says. "Think about this as the kind of competitive process Sandians are comfortable with. Nonprofit agencies are like PIs within Sandia's LDRD process. Proposals are vetted by a committee and compared against other proposals. Selections are based on who appears most likely to deliver the greatest impact to the most vulnerable members of our community."

The Community Fund allocated $3.5 million to 103 programs serving more than tens of thousands of children and adults in central New Mexico for 2015-16. Last year Sandians donated $1.7 million to the fund, or 26.5 percent of the Labs' total $6.4 million campaign.

Justin encourages Sandians to donate to the Community Fund. "It is a worthwhile and meaningful investment in ensuring that all people have the opportunity to better themselves through education, are healthy and safe, financially stable, and live life with dignity," he says. "The Community Fund is about moving the needle on these needs. It's like forming a credit union. No one member may be capable of providing sufficient capital for meaningful lending, but together all the members make it possible for their colleagues and neighbors to buy cars and homes."

Employee Caring Program

ECP Kickoff Event October 5
11 a.m. - 1 p.m.
Steve Schiff Auditorium Lobby & Courtyard

Attendees select a Community Fund Impact Area to receive a $25 donation as a result of their attendance.

SODEXO LUNCH AVAILABLE 11-1

United Way Community Fund
ABQInvolved
Adaptive Sports Program New Mexico
Albuquerque Public Library Foundation
Albuquerque Youth Symphony
ALS Association New Mexico Chapter
Alzheimer's Association (NM Chapter)
APS Education Foundation
ARCA
Assistance League of Albuquerque
Brain Hackers Association
Cancer Support Now Inc.
CareNet
Centro de Ensenanza Moderna
Childrens' Cancer Fund of NM
Cibola Search & Rescue
CLNKids
Community Link ABQ
ES Foster Education Assistance Trust
Fabulous Felines
Family Services for Children
Greater Albuquerque Society of Black Engineers
Healing the Children SW Chapter
June's Senior Cat Rescue
Keshet
Lap Dog Rescue of NM Inc.
Locker #505 (Student Clothing Bank)
Love INC of Albuquerque
Make-A-Wish Foundation of NM
National Institute of Flamenco
New Mexico Jazz Workshop
New Mexico Off Highway Vehicle Alliance
New Mexico Philharmonic
New Mexico Wildlife Federation
Operation Christmas Child
Project Linus
Prosperity Works
Ronald McDonald House Charities of NM
Senior Citizens' Law Office Inc.
Sickle Cell Council of NM
Southwest Creations Collaborative
Special Spaces
Talking Talons Youth Leadership
The Leukemia & Lymphoma Society
True North Financial Ministries

Students explore brain science in after-school STEM club

By Valerie Larkin

Neuroscientist Chris Forsythe (431) has found a unique way to interest teenagers in science, technology, engineering, and math (STEM) and keep them engaged.

Three years ago, Chris founded the popular Brain Hackers after-school neuroscience program at Roosevelt Middle School in Tijeras, and the students keep coming back for more. This year, Chris estimates that nearly 15 percent of the school's students are staying after school to learn about neurotechnology and applied brain and behavior science.

The goal of Brain Hackers, Chris says, is to interest students in STEM at a critical time in their development, and to help them maintain that interest. After running an award-winning robotics club for several years, Chris noticed a pattern: Many of the students in the club were excited about STEM in elementary school, but by the time they entered middle school, that interest had waned, particularly in the girls.

A number of factors are at play, Chris says, including the students' maturity and their changing interests during a time of self-discovery.

"That prompted me to think of how I could start a program that would hold onto these kids that we're losing and keep them engaged in middle and high school. That is the impetus of Brain Hackers. One of the key aspects of the program is that every activity we do is geared around how I can take the science and make it directly relevant to everyday life," Chris explains.

BRAIN STEM — Students in the Brain Hackers after-school STEM program learn about neurotechnology and applied brain and behavior science from neuroscientist Chris Forsythe. The popular program is in its third year at Roosevelt Middle School with plans to expand to other schools. (Photo by Randy Montoya)

An engaging syllabus

Chris designs weekly activities and brief lectures around topics that naturally pique teenagers' interest, including music and the brain, the differences between girls' and boys' brains, and how the brain constructs and responds to stories.

He says that, even without making a special effort to recruit girls for Brain Hackers, the club's membership consistently comprises approximately 50 percent girls, which is unusual for STEM programs.

"I think a lot of what makes it work is taking the things they are naturally going to be doing, whether it's playing with online applications for creating music, or making YouTube movies, and then giving them the background of how brain and cognitive processes work and how to apply that knowledge," Chris says.

Last school year, analyzing music's effect on the brain was particularly popular with the students. They monitored their brain activity by wearing electroencephalograms while playing musical instruments. The output was projected onto a screen for the group to see and analyze.

"One of the key aspects I wanted to introduce about the brain is pattern recognition, and how the brain is constantly making predictions and monitoring the world to see if those predictions are met or violated. I described how the brain and its circuits operate, and I did it in the context of music," Chris says.

This year the program's syllabus includes a focus on artificial intelligence and biomemetics, a topic numerous students requested. First he will teach the students about brain circuitry, and then the group will use Lego Mindstorm robots to model how the brain accomplishes certain functions.

"This will be the first time I've merged the Brain Hackers activities with the robotics activities, but there seems to be a natural overlap between the two," Chris says.

Chris is also developing a program for fourth- and fifth-grade students to teach them about basic brain science and give them practical advice for doing well in school and in sports and other interests. While Chris hopes the program will be fun and engaging, it will also address serious topics such as stress, mental health, peer pressure, and concussions.

"My goal is to provide them with an age-appropriate appreciation of the underlying physical mechanisms as a basis for understanding what is happening, and, hopefully, making better decisions," he says.

A unique path to STEM

Chris works in Human Factors, where his research in cognitive psychology and applied brain science benefits departments across the Labs. "The common thread is how to use technology to better understand or improve brain performance, enabling people to perform better, accelerating training, and even figuring out who's the best for certain jobs. Everything I've done while at Sandia has been about how to improve human performance in one way or another."

Chris didn't always have an interest in science, though. He grew up in a farming community in rural Tennessee where it was common for teenagers to drop out of high school and go to work. "When I was 14, I was out of school working full time doing construction. It was almost a coincidence that I decided to try college. I started out at a community college, and I did really well. I continued on and eventually got a PhD. I've been at Sandia for 23 years, and I had kind of a weird path to get to where I am today."

He says he benefitted from being mentored in his youth, and he hopes to give that experience to today's students. "I had this same type of experience," he says, gesturing around the room at the students who have gathered to learn from him, "but it was working construction with older journeymen, carpenters, and electricians who mentored me as a teenager in the same way that I'm working with these kids."

Chris, who is about to retire, plans to expand the program to community centers, museums, and other schools this school year. He welcomes those interested in mentoring to join him. A background in brain or behavioral science is helpful but not required.

Chris says that every week when the club meets he reminds himself that instead of playing video games or watching movies on YouTube, nearly 50 students choose to spend their time learning about neuroscience with him.

"I know that no matter what they choose to pursue in college and later in life, they will benefit from having a practical understanding of their brain and how it affects their experiences in life," he says.

A FAMILY INTEREST IN STEM — Nearly 50 Roosevelt Middle School students stay after school each week to participate in Brain Hackers. Among them is Chris Forsythe's daughter, Kasey Forsythe. Kasey, a seventh-grader, has participated in Brain Hackers for three years and is also active in her dad's robotics club. Chris says that the membership of Brain Hackers consistently includes 50 percent girls, which is unusual for a STEM program. (Photo by Randy Montoya)

Sandia clean-energy assistance pilot is officially open for business

By Nancy Salem

Small businesses in the clean-energy sector can apply for technical help from Sandia and other DOE labs through a new pilot.

David Danielson, DOE assistant secretary for Energy Efficiency and Renewable Energy (EERE), announced the launch of the Small Business Vouchers (SBV) Pilot website on Sept. 23 at Oak Ridge National Laboratory in Tennessee. The pilot, part of EERE's National Laboratory Impact Initiative, aims to help small businesses bring next-generation clean energy technologies to the market faster by giving them access to expertise and tools at national labs.

Earlier this year, DOE chose Sandia as one of the five leads in the $20 million pilot, along with the National Renewable Energy Laboratory and Lawrence Berkeley, Oak Ridge, and Pacific Northwest national laboratories.

Sandia was awarded the pilot in the sectors of solar energy, wind, and geothermal technologies, and will receive funding to allocate to small business applicants. "Sandia is excited to manage an initiative that will allow the Labs to help clean energy companies across the country," says Jackie Kerby Moore, Sandia's manager of technology and economic development.

Companies can apply to Sandia through the SBV website for $50,000 to $300,000 in vouchers that can be used for a variety of technical assistance. The best business proposals focusing on a specific technical challenge will be selected in a competitive process. Successful companies will be required to provide a 20 percent cost share or in-kind services.

Nationwide, the pilot focuses on helping small businesses that are developing technologies in the areas of advanced manufacturing, buildings, vehicles, wind, water, bioenergy, fuel cells, geothermal, and solar. To be eligible, businesses must be US -based and -owned with no more than 500 full-time employees worldwide. A total of three cycles of competitions will be offered to interested small businesses in 2015 and 2016.

A Sandia wind turbine at Texas Tech University in Lubbock, Texas, demonstrates Scaled Wind Farm Technology, or SWiFT. (Photo by Lloyd Wilson)

Sandia offers a range of expertise and facilities to support research in fields related to the SBV goals.

Solar photovoltaic (PV) research uses Sandia's Photovoltaic Systems Evaluation Laboratory and Distributed Energy Technologies Laboratory to evaluate and improve performance, reliability, cost-effectiveness, and grid integration of PV systems.

Sandia also does modeling and analysis of PV components and systems, PV performance modeling, and research to reduce and optimize non-hardware balance-of-system components and costs. It also explores grid integration and advanced inverters to support large-scale deployment of PV in grid-tied power systems, and contributes to the development of national and international PV codes and standards.

Applied research in Sandia's wind energy program helps increase the viability of land-based and offshore wind energy by improving performance and enhancing reliability to reduce costs. The lab focuses on wind blade and rotor materials and design, component and system reliability, plant performance, and operations and maintenance. Sandia also researches wind turbines and radars to help optimize wind power siting decisions, and contributes to wind power-related standards.

Sandia's geothermal research aims to reduce the cost and risk associated with geothermal resources development to expand the nation's use of geothermal energy. The Labs' work centers on development and investigation of improved well construction and completion technologies, such as drilling technology and diagnostics, high-temperature electronics and tools, geothermal systems modeling, advanced drill bits, reservoir stimulation technologies, and wellbore stability.

Businesses are invited to apply at http://www.SBV.org.

Employee death

Meticulous, gentle Ray Fagliano will be missed

Ray Fagliano came to Sandia relatively late in his career after many years in IT at Intel and Albuquerque Public Schools. In his three years at the Labs, Ray made an impression as a quiet, can-do professional with a positive attitude willing to take on the tough jobs and do them well. He stayed cool when the stakes were high and the going got hot. Ray died earlier this month at the age of 65.

RAY FAGLIANO

John Noe, Ray's manager in Scientific Computing Systems Dept. 9328, says, "Ray's friendly nature, permanent smile, and curiosity about technology made him a perfect addition to the Data Management team when we needed an infusion of hardware expertise."

John notes that when Ray first came on board, he didn't know much about Linux systems or scientific computing but he learned fast.

"He eagerly educated himself through classwork and self-study," John says. "His meticulous attention to detail and insistence on process, gained from his experience in the fabrication plants, increased the efficiency of many of our own processes."

It didn't take Ray's colleagues long to figure out that he was a go-to sort of worker.

"I was grateful for his willingness to accept any challenge," says Mike Martinez (9328). "If he didn't know how, he would figure it out or ask for help." Connie Sutton (9328) saw that side of Ray, too. "I liked how Ray accomplished tasks without any fanfare or drama," she says. "His meticulous nature was appreciated in how he designed and implemented our high performance computing systems." Gayle Drake-Kerr (9328), too, was impressed with Ray's attention to detail. "It was apparent he really cared about his work," she says.

John says Ray was always the first to volunteer to help others with their work whether it was directly related to the team's efforts or part of other activities in the Center. "He was constantly learning and on the lookout for how to apply new methods or tools in the course of his work," John says. "His positive outlook, gained from a previous bout with cancer, helped infuse the team with a similar attitude."

Bill Collins (9328) notes that Ray's demeanor set a good tone for the team. "I appreciated Ray's calm and gentle manner, no matter the stresses," Bill says. Despite that unruffled exterior, though, Ray could get excited over the team's successes.

Sandy Warner (8945) remembers a time when Ray was on the phone that attached to the wall in their facility. He was talking with someone about an issue the team had been trying to get resolved for a long time. "The person on the other end was finally able to help us," Sandy says. "Ray got so excited that he turned around, phone in hand, to let me know we got help. As he turned, he jerked the phone off the wall."

Susie McRee (9328) remembers how much Ray enjoyed Take Your Daughters and Sons to Work Day. "I asked him if he could take the top portion off of one of our tape drives and tapes so the kids could see inside," Susie says. "He was able to take the top portion off of one of our old drives and pondered what to do about the tape. Ray and I would attend the Large Tape Users' Group each year. They had a new drive on demo with a clear plastic top that was loading and unloading a tape. I told Oracle what we were up to and they thought it was a great idea, gave us the plastic top and a tape encased in clear plastic. Ray worked with the Oracle engineers so we could perform the demo for the kids. He thoroughly enjoyed that project and enjoyed interacting with the kids."

So focused was Ray on his work that it was easy to forget his many other interests. For example, University of Michigan alumnus Allan Yaklin (9328) fondly remembers the "interesting discussions" he and San Francisco 49ers fan Ray would have when 49ers' coach Jim Harbaugh announced he was taking the head coach's job at UM. And student intern Nick Tempel (9328) says he "always appreciated Ray's clever sense of humor."

John says Ray worked hard to learn and apply new skills and knowledge for the team, adding,"We all came to value him, his outlook on life, and especially his constant optimism. We are all saddened by his sudden health issue and subsequent death."

— Bill Murphy

2016 Truman Fellow's Sandia research will boost Sandia's quantum information sciences program

Mike Martin has been selected as Sandia's 2016 Truman Fellow. He joins the ranks of 21 other Fellows who have been appointed since the President Harry S. Truman Fellowship in National Security Science and Engineering was established in 2004.

Because the fellowships are three-year assignments, three Truman Fellows are still doing research at Sandia as part of their fellowship. Additionally, 15 other Truman Fellows subsequently joined the Labs' technical staff upon completion of their fellowship assignments, nine of whom are still researchers at Sandia.

Mike, who earned his doctorate in physics from the University of Colorado at Boulder, will work in Physics-Based Microsystems Dept. 1728 under the mentorship of Grant Biedermann and manager Rob Boye. He will begin his Fellowship on November 30.

MIKE MARTIN

Sandia Deputy Chief Technology Officer Andy McIlroy (1900) says the Truman Fellowship program continues to attract a best-of-the-best pool of applicants who are already making important contributions in their fields. "Sandia received outstanding research proposals from numerous individuals competing for the prestigious Truman Fellowship," Andy says. "Proposal packages are increasingly competitive each year, making the Truman Selection Committee's deliberations difficult. Ultimately, they recommended Mike Martin be offered the Truman Fellowship. We look forward to great results from the game-changing research proposed by Mike and are confident that the research will help us advance our work in areas of fundamental importance to our research foundations."

The *Lab News* recently asked Mike to describe the work he intends to pursue at Sandia. Here's what he had to say:

"Quantum entanglement, the intricate and fragile connections between the constituents of a quantum system, lies at the heart of technologies such as quantum computers, quantum simulators, and sensors that exceed the 'standard quantum limit' (the optimal performance of an entanglement-free system). There are numerous systems that can achieve entanglement, but systems for which interactions between constituents — such as atoms or ions — can be controlled on demand, offer the greatest flexibility as building blocks for quantum computation and quantum information processing.

"As a Truman Fellow, I will work to develop a controllable, strongly interacting quantum system based on neutral atoms trapped in a configurable optical potential. In this system, we will achieve control of the interactions by selectively accessing the so-called Rydberg levels of the neutral cesium atoms, where the outer shell electron is highly excited and occupies an orbit relatively far from the atomic nucleus. These states possess many beneficial properties, key among them a greatly enhanced inter-atomic interaction strength and a long lifetime, which prevents spontaneous emission from destroying entanglement. By generating larger scale systems of trapped atoms, with spatial light modulation techniques, we hope to generate many-particle entangled states."

The Truman Fellowship selection committee was impressed by Mike's many accomplishments and found his research goals to be a good fit for Sandia. The committee noted that Mike's research helped establish the most stable optical atomic clock in the world using ultracold strontium atoms confined in an optical lattice. The selection committee said it was intrigued by aspects of Mike's research proposal, adding that "success in his work would be a substantial engineering and experimental science achievement. The project will be an exceptionally good match to Sandia's Quantum Information Sciences program."

Says Mike, "The Truman Fellowship will allow me to join an accomplished team, including Sandians Grant Biedermann and Peter Schwindt (both 1728), while also granting me the independence and flexibility necessary to pursue challenging new approaches to scaling entanglement to the many-atom regime. I'm looking forward to tackling these scientific challenges within the strong technical and collaborative environment of Sandia."

Mike comes to Sandia from the California Institute of Technology, where he was an Institute for Quantum Information and Matter Prize Postdoctoral Fellow. At Caltech he worked on characterization of nano-photonic devices and devising and implementing the protocols for transferring photonic circuits into cold-atom vacuum systems

In his graduate work, Mike made several outstanding contributions to the development of quantum metrology and precision measurement. Significant achievements include the recent demonstration of the world's most stable laser and the development of a new and powerful paradigm to study a many-body spin system.

During his academic career Mike has received numerous awards. He is the author of 26 publications and has delivered numerous invited talks at international conferences.

" I'm looking forward to tackling these scientific challenges within the strong technical and collaborative environment of Sandia." — Mike Martin

Truman Fellowships

The Truman Fellowships are three-year appointments. Candidates are expected to have solved a major scientific or engineering problem in their thesis work or have provided a new approach or insight to a major problem, as evidenced by a recognized impact in their field. The program fosters creativity and stimulates exploration of forefront science and technology and high-risk, potentially high-value R&D. A panel of senior scientists/engineers and one Fellow reviews and ranks each application, interviews finalists, and makes a hiring recommendation to the CTO, 1000. Applications are currently being taken for the 2017 application deadline of Nov. 1.

The 2016 panelists were: Cynthia Phillips (chair, 1400); Joe Michael (1800); Philip Kegelmeyer (8900); Sandia Fellow Ed Cole (1000); Tan Thai (5600); Phil Dreike (5700); and Michael Desjarlais (1600).

Sandia's CTO Programs Office (1911) and Human Resources (3555) teamed more than 10 years ago to create the Truman Fellowship Program and develop the processes necessary to implement the prestigious position.

Current Truman Fellows are Grey Ballard (8962), John Gamble (1425), and Julia Ling (8253).

Kurt Ferreira receives IEEE Early Career award

KURT FERREIRA

Kurt Ferreira (1423) has been selected to receive the 2015 IEEE Technical Committee on Scalable Computing (TCSC) Award for Excellence for Early Career Researchers. This award recognizes up to three individuals who have made influential and potentially long-lasting contributions in the field of scalable computing within five years of receiving their PhD.

Kurt's research interests in the Scalable System Software Department include the design and construction of operating systems and runtimes for massively parallel systems, and innovative application and system-level fault-tolerance mechanisms.

In 2000, Kurt received a bachelor's degree in mathematics and another in computer science from New Mexico Tech. From UNM, he earned a master's degree in computer science in 2008 and doctorate in computer science in 2011. In addition to his position at Sandia, Kurt is a research associate professor in UNM's department of computer science.

"This is a great recognition of Kurt's contributions to the field of system software for high-performance computing," says manager Ron Brightwell (1423).

The IEEE Technical Committee on Scalable Computing (TCSC) is an international forum within the IEEE that fosters research and education in scalable computing. According to its site write-up, "TCSC is interested in all areas of scalable computing, including but not limited to, high performance computing systems, cloud computing systems, grid, algorithms, applications, scheduling and workflows, and various others."

The award will be presented to Kurt at SC'15 in Austin in November.

— Neal Singer

SANDIA CLASSIFIED ADS

MISCELLANEOUS

REFRIGERATOR, 18.1-cu. ft., white, good working condition, located in Los Lunas/Tome area, $300 OBO. Sloan, 505-363-7750.

WINDOW FAN, Air King 9166D, whole-house, w/assembled fan & storm guard sliding panels, $90; snowboard, size 11 Burton boots & bindings, $50. Knarr, 505-492-0990.

LOFT BED/DESK, w/attached shelves, full-size, made sturdy, not cheap like in furniture stores, $325 OBO. Herrera, 505-382-9670.

SYMPHONY TICKETS, 2, Brahms, Beethoven & Pratt, Oct. 10, Popejoy Hall, Mezzanine, EE123/124, $68 ea. OBO. Gorenz, 856-6407.

CONVERTIBLE CRIB, w/matching dresser, tan, high quality, heavy & sturdy, $375; double stroller, sit & stand, great shape, $125. Davis, 505-610-1309.

iMAC 27-in., late '12 model, 3.4 GHz, i7 Quad Core, 8 GB RAM, GTX 675mx, 1 GB, 1 TB fusion HD, $1,400 OBO. Cooper, 505-322-8686, ask for Erik.

WHEELS/TIRES, 4, 20-in., for '11-'14 Ford Mustang, details at arguendo.org. Schutt, 505-296-5036.

COACH HANDBAGS, 2, both hobo handbags, brand new, w/tags, one grey, one multicolored, $80 ea. Chavez, 301-5671.

QUEEN/FULL BEDROOM SET, upright & mirror dressers, nightstand, bedframe, awesome condition, $700 OBO. Roesler, 734-474-9330.

MODEL RAILROADER MAGAZINE, issues from '02-'06, located in CA, you pick up, free. Hardwick, 925-846-0879.

ICEKING ICE BOX, before electricity, antique, very nice, good condition, call for photos, $650 OBO. Davis, 505-553-3628.

STOVE, stainless steel front, excellent condition; dishwasher, excellent condition, $200/both. Ward, 505-836-3663.

DVD PLAYER, Sony, w/remote, used, $20. Hennessey, 505-269-6243.

SWIMMING POOL SLIDE, good condition, $200. Meister, 232-4700.

SECURITY/STORM DOOR, white, 36" x 80", w/all parts except for one way bolts, $80 OBO. North, 514-7878.

SEWING CABINET, Horn Deluxe Air-Lift, 48"W x 20-1/2"D x 30"H, back drop leaf, machine cut-out, excellent condition, $1,700 negotiable. Edenburn, 505-869-2911.

FLAT PANEL TV, 60-in., Toshiba, $250; TV stand, 2 glass shelves, $50; framed 60-in. Steve Hanks watercolor. Myers, 505-903-0911.

JIMMY BUFFET CONCERT TICKETS, 2, Oct. 20, Isleta Amphitheater, sec. 8, face value. Ramotowski, 286-8334.

GYM-QUALITY MATS, 2, $90; 3'x4' dining set, Southwestern-style, w/4 chairs, hand-upholstered cushions, $490. Moonka, 505-307-4879.

SOFA, rocking chair, ottoman, excellent, $100/set; entertainment unit, $75; refurbished icebox, $150; Sony speakers, $40. Padilla, 822-9622.

FILE CABINET, metal, 2-drawer, good condition, $25; push mower, w/grass catcher, $35. Rodacy, 293-1668.

TOW BAR, RV Falcon 5350, paid $726, asking $375; combo elect wiring kit, towing, $85; RV camping equipment, lounge chairs, tables, BBQ, etc. Garcia, 554-2690.

ACOUSTIC GUITAR, 6-string, Martin Road Series DCME, built-in pick-up/pre-amp, upgraded tuning heads, bridge pins, case, $1,000. Witzke, 281-1520.

CONVERTIBLE 3-IN-1 CRIB, espresso, Dakota Lifetime, model #3700, $175; Superyard play yard, $25; Cocaloa Daniella crib bedding set, $50. Vigil, 400-0639.

KITCHEN CABINETS, birch plywood, from remodel, you haul, $100; 3-basin stainless sink, $100; photos available. Stiles, 505-275-2941, llstile@outlook.com.

GUN SAFE, Browning ProSteel, $400 OBO. Castillo, 269-1705.

BUNKBED, full/couch on bottom, twin on top, w/mattresses, very good condition, $150. Scofield, 505-265-4853.

JOIN FABULOUS FELINES, at Sandia Agency Fair, Oct. 5, www.fabulousfelines.org. Stubblefield, 263-3468.

70 CLASSIC RECORD SETS, 33-1/2 RPM, greatest music/composers, Time-Life plus others, $140. Philbin, 828-2414.

LABRADOR PUPPIES, located in Bernalillo Co., 1 black, 1 yellow, males, 3 mos., all shots, kennel trained, $200. Heald, 505-485-7474.

ROBERTO CLEMENTE OIL ON CANVAS, by Dick Perez, 25" x 25", action with unique pitcher's view, $4,000. Guy, 505-228-6216.

POOL TABLE, Dynamo, very good condition, $800. Johnson, 353-2213.

How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday.
Submit by one of these methods:

- **EMAIL: Michelle Fleming (classads@sandia.gov)**
- **FAX: 844-0645**
- **MAIL: MS 1468 (Dept. 3651)**
- **INTERNAL WEB: On internal web homepage, click on News Center, then on *Lab News* link, and then on the very top of *Lab News* homepage "Submit a Classified Ad."**

If you have questions, call Michelle at 844-4902.

Because of space constraints, ads will be printed on a first-come basis.

Ad rules

1. Limit 18 words, including last name and home phone (If you include a web or e-mail address, it will count as two or three words, depending on length of the address.)
2. Include organization and full name with the ad submission.
3. Submit ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. One ad per issue.
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active Sandia members of the workforce, retired Sandians, and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. We reserve the right not to publish any ad that may be considered offensive or in bad taste.

MINIATURE DACHSHUND PUPPIES, full-bred, black & tan female, red & tan dapple female, in Sandoval Co. Gallegos, 239-1799.

COUCH, burnt orange-brick color, brushed corduroy, 85"L x 41"D x 34"H, great condition, photos available, $100. Wallis, 505-681-7785, tdwallis@4cmc.net, email/text.

TREADMILL, Horizon-Fitness CST4-Incline, $150; Rattan-Peacock chair, $60; authorized Warhol print, "Gun in Black White Red", $150. Burfeindt, 897-0179.

RUBBER FLOOR MATS, for Infiniti G35/G37 sedan, beige, 2 front, 2 back, spotless, $50. Hall, 280-4344.

TRANSPORTATION

'11 HONDA ACCORD LX, original owner, white/beige, newer tires, all fluids just changed, 38K miles, excellent condition, $12,500. Dwyer, 271-1328.

'02 DODGE DAKOTA PICKUP, 2WD, extended cab, V6, AT, airaid-intake, new tires, bed liner, 94K miles, excellent condition, $5,950. Biswell, 281-9039.

'08 BMW 328i, dark gray, red leather, low miles, 69.8K miles, very good condition, $15,200. Mont, 214-264-4685.

'08 BMW 328xi COUPE, 4WD, 59,850 miles, super clean, drives great, all service records by Sandia BMW, $15,000. Dai, 505-990-9116.

'70 DODGE 100 PICKUP, rebuilt 318 engine, runs well, white/baby blue, $6,500 firm. Vandevender, 505-200-1807, ask for Michael.

'08 DODGE 3500 MEGA CAB, dually, 6.7 diesel, 4x4, AT, 48.4K original miles, excellent condition, $36,000 OBO. Galaz, 505-908-1841.

'12 FORD MUSTANG, w/ Pony pkg., V6, 6-spd., 28-mpg, leather, PS, PW, 41K miles, great condition, fun car, $15,500 OBO. Cocain, 505-440-4121.

'86 FORD MUSTANG 5.0 GT, convertible, AT, 8-cyl., white, 124.5K miles, good condition, $2,500. Vernon, 505-573-6828.

'08 TOYOTA COROLLA S, 1 owner, great condition & gas mileage, 134K miles, $6,000. de la Fe, 974-8670.

RECREATION

'09 HONDA VTX 1300R, garage-kept by retiree, only 16K miles, excellent condition, $5,000 OBO. Hurst, 505-697-8873.

ELLIPTICAL BICYCLE, Elliptigo 8C, 8-spd., 8 levels of resistance, hill capable, mint condition, $1,250. Schriner, 505-275-3312.

'14 SUZUKI C-50 BOSS, black, 1,697 miles, lots of extras, like new, $6,000. Phelps, 336-935-1906, ask for Marcella.

'01 HARLEY-DAVIDSON SPORTSTER HUGGER, 4,550 low miles, w/extra gear, excellent original condition, $4,000. Riley, 321-591-2739.

KIDS BIKES, Diamondback, 20-in. wheels, 6-spd., blue, $90; Adams Trail-A-Bike, 5-spd., $60. Weber, 553-2118.

'05 POLARIS SPORTSMAN ATVS, 2, 1,500 HO, 1,700 V-Twin, $10,000 OBO. Head, 505-450-5627.

CANOE, Old Town Penobscot, 16 ft., w/paddles, vests, extra seat, more, good condition, $875 negotiable. Menicucci, 505-235-8501.

STANDUP FITNESS BIKE, Elliptigo 8C, 8-spd., mint condition, MSRP $2,500, asking $900 OBO. Castillo, 505-850-3700, ask for Victor.

REAL ESTATE

2-BDR. HOME, fully furnished, on 2.346 acres, Timberon NM, $77,900. Argeanas, 299-3294.

1500+ ACRES, NM high country land, near Chama, elk hunting, fishing, hiking, >$150/acre, call for details. Smith, 238-0502, ask for Dennis.

3-BDR. HOME, 2 baths, 1,375-sq. ft., finished 2-car garage, covered patio, upgraded landscaping, paint, counters, fireplace, flooring, $155,000. Foster, 505-270-9261.

WANTED

BALLOON TEAM, during first Fiesta weekend, to work PBS Digital Studios Science host, developing educational videos. Haskell, 323-3843.

LOCAL CRAFTERS, holiday craft show, Dec. 12, call for more info, $25/table. Pape, 505-263-7130.

ROOMMATE, furnished room, bath, queen bed, kitchen, laundry, parking, nonsmoker, no pets, Four Hills, accepting short-term, $425/mo. Egan, 505-323-9596, meinthesw@aol.com.

'07 OR CLOSE YEAR TOYOTA 4RUNNER, 2WD, good-excellent condition, no smoking, low average miles. Siegrist, 293-4148.

CHEMISTRY TUTOR, for high school student. Montoya, 342-0043.

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong

Michael Rocco
35 4844

Recent Retirees

Michael Garcia
37 5966

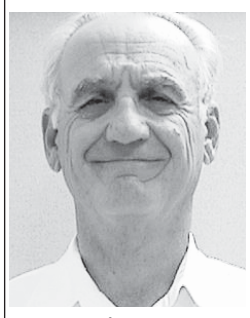
Neville Moody
34 8342

James Aubert
33 1819

Michael (Mack) McDonald
30 5624

Regina Valenzuela
30 3657

Elizabeth Dees De Sanchez
25 4237

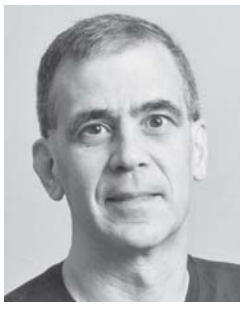


Steve Bauck
28 11011

Betsy Parker
26 9513

Toni Leon Kovarik
21 10243

Mark Miller
11 4128



Mark Grubelich
25 6916

Virgil Thompson
25 10264

Terry Wilson
15 10667

Lab News is available in news racks at 24 locations throughout the Labs. Delivery to mail drops has been discontinued. A digital version of *Lab News* continues to be available on Tech Web as well as on Sandia.gov.

Lab News Rack Locations:

1. Bldg. 802, elevator lobby
2. Bldg. 810, east lobby
3. Bldg. 822, south entrance
4. Bldg. 858 EL, lobby
5. Bldg. 880, Aisle D, north lobby
6. Bldg. 892, lobby
7. Bldg. 894, east entrance, lobby
8. Bldg. 898, east lobby
9. Bldg. 887, lobby
10. Bldg. 878, lobby
11. Bldg. 836, lobby
12. Bldg. 831/832 north lobby
13. Bldg. 861, Cafeteria lobby
14. Bldg. 870, lobby
15. Bldg. 701, lobby
16. IPOC, lobby
17. CGSC, lobby
18. CRSI, lobby
19. M.O. 308, lobby
20. Bldg. 960, lobby
21. Bldg. 962 (TA III), lobby
22. Bldg. 6585 (TA V), lobby
23. Bldg. 905, lobby
24. 800(A), outside of Vicki's

THEY'RE THE TOPS

Sandia Emergency Response Team sweeps technical category at annual HAZMAT Challenge

JOHN LEDET, a member of the Sandia Emergency Response Team that nabbed top technical honors at the weeklong 19th HAZMAT Challenge at Los Alamos National Laboratory.

By Lindsey Kibler

Photos by Randy Montoya

A five-man Emergency Response Team (ERT) from Sandia nabbed top technical honors at the 19th HAZMAT Challenge at Los Alamos National Laboratory (LANL).

During the weeklong competition the team faced numerous simulated hazardous-material emergencies, including a downed C-130 military aircraft transporting Ebola-infected patients, industrial pipe leaks, and the rescue of a patient trapped in a clandestine laboratory filled with an unknown chemical.

The scenarios were similar to real-life emergencies that have occurred worldwide and were graded on technical approach as well as time needed to complete the tasks.

Sandia team members included HAZMAT supervisor Victor Marquez, Dale Larez, John Ledet, Troy Hamby, and Richard Lovato (all 4236-1).

A total of 12 HAZMAT response teams from New Mexico, Missouri, and Nebraska completed a series of graded, timed exercises where seconds, rather than minutes, meant the difference between first, second, and third place. Trophies were awarded for technical, best overall, and sportsmanship.

"Sandia's ERT successfully responded to the challenges presented and was awarded first place in the technical category. The competition demonstrated the team's capabilities to respond to emergencies," says Eugene McPeek, manager of Emergency Management Dept. 4236. "These challenges provide Sandia the opportunity to demonstrate proficiencies and, as a result, give members of the workforce confidence that these skills would transfer to real-world incidents at Sandia."

The event gave the teams opportunities to test their skills, share best practices with their colleagues, and learn new techniques through realistic scenarios in a safe, non-hazardous environment.

RICHARD LOVATO took part in the 19th HAZMAT Challenge, a weeklong competition designed to test response teams on simulated situations involving potential biological and radiological emergencies.

VICTOR MARQUEZ, supervisor of this year's HAZMAT Challenge team, says the team's win "is a testament to the training program" in place for Sandia's emergency response team members.

In addition, the team took Emergency Management Trainer Ricardo Paz (4236-3), a certified paramedic and medical instructor, to this year's challenge. Ricardo monitored team members' vital signs before and after each event, ensured safety gear was clean and ready to use, and resupplied water. Volunteers Victor Cepero (1741) and Marty Moriarty (1746, with MESA Microfabrication), also supported the ERT team, serving as stand-by members in the event of an accident, and filling water bottles and air tanks.

"This win is a testament to the training program we have here at Sandia. Between real-world events and training scenarios, we are prepared," says Victor. "We want people to know that we are here, at Sandia, and if they ever need to call 911, we will be on the other end, ready to respond."

TROY HAMBY participated in the 19th HAZMAT Challenge at LANL. Troy, one of five Sandians, faced a total of 12 HAZMAT response teams from New Mexico, Missouri, and Nebraska in a series of graded, timed exercises.

"We've come so close for so many years, and we've lost by small points — it's come down to one point or one-half of a point before — and it's frustrating," says former Sandian Steve Saddoris, the team's HAZMAT trainer and logistics coordinator, who recently left the Labs. "This year the team went in wanting to win the technical portion and, for the first time, they got it. If you're going to win anything, this is the category you want to win."

This team won by 14 points, a huge margin, say Eugene and Steve. Steve credits the team's win to the weekly HAZMAT, technical rescue, and classroom-based training Sandia ERT members take part in throughout the year, as well as their years of experience.

Typically, the team will start training for the challenge three months before it begins. Because real-world missions took priority, there were fewer training opportunities available compared to previous years. The team did, however, make a few trips to Los Alamos to practice on challenge props made available by LANL.

Victor and Dale agreed the win would not have been possible without help from others outside the team. "Aside from the mentally and physically taxing events we do at the challenge, it also serves as a unique training opportunity," says Dale. "We are able to talk with other responders in the field and compare tactics and equipment, which is why it means so much that management from the top down has been supportive of this event."

DALE LAREZ, a member of the Sandia Emergency Response Team, has participated in the LANL HAZMAT Challenge for the past six years. This is the first time any Sandia team has taken first-place technical honors at a challenge.